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In This Issue: **Liquidity and Value**

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Financial Markets and Economic Growth*

by Merton H. Miller, University of Chicago

When the title is "Financial Markets and Economic Growth" and the author is from the University of Chicago, you can be forgiven for expecting still another paean to the benefits of free markets as a way of organizing economic activity. The well-known optimality properties of markets in general will surely be stressed—how they permit goods and assets to flow to those who can utilize them most efficiently. And how in good Hayekian fashion, markets serve to aggregate, and make available to us all, the bits and pieces of private information scattered throughout the economy. Because the title emphasizes *financial* markets, additional comments are sure to follow on two critical and oft-neglected roles of financial markets—including under that heading stock markets, bond markets, future exchanges, over-the-counter markets and derivatives of all kinds. The first is the risk-transfer function of financial markets in assuring that the inevitable hazards of business life gravitate to those most willing to bear them. The second is price discovery. How much is all the nonperforming real-estate collateral of the Japanese banks really worth? We don't know because the Japanese regulatory authorities won't allow it to be sold and hence priced. The term economic growth in my title surely signals discussion of how financial markets serve to marshall the savings of the public and channel them to firms undertaking productive investments, generating still more savings and more investment in the classic virtuous circle of development. And finally, the mention of the University of Chicago certainly suggests reference will be made to free markets as an accompaniment—we would actually say an underpinning—of democracy.

These are indeed critical attributes of markets that have been stressed by economists for decades. But though it may disappoint your expectations, I don't intend to replough that familiar ground here today. Instead, I propose to take and defend a position directly counter to the anti-financial market views heard so often these days. My point will be that the recent sharp reductions in the hitherto rapid economic growth of Southeast Asia—growth being the second part of my title for this speech after all—trace not to too *much* reliance on financial markets, but to too *little*. I will argue that a well fleshed-out set of financial markets and associated institutions means a country can reduce its dependence on the banking system, which is normally far and away the dominant institution for financing economic growth in the developing countries of the world today, just as it was in the 19th century for the U.S.

Banking is not only basically 19th-century technology, but it is disaster-prone technology. And in the summer of 1997, a banking-driven disaster struck in East Asia, just as it had struck so many times before in U.S. history, even down to as recently as 1989-1990. That the U.S. economy did not freeze up into depression in 1989-90, as it had in 1931 and so often before that, can be credited, I believe, to the rich variety of non-bank financial markets and institutions available to American firms and households. The U.S. is now *diversified* financially, as it were, in a way that East Asia in 1997 was not. As the developing countries of Asia do diversify and reduce their over-reliance on banking, they will reap major gains not only in stability, but in economic efficiency. That's the polite way to put it, of course. I might equally well have said they would suffer less inefficiency, waste, and corruption.[1]

The Positive Side of Banking

Before criticizing the role of banks in the East Asian disasters of the past two years, let me first restate the positive case for why such heavy reliance had been placed on that institution. Banking is often credited with the "miracle" of liquidity creation. Each bank acquires assets that are basically *illiquid* in the sense that, even under the best of conditions, converting those assets back to cash means substantial costs and delays. Yet the banks' depositors, who put up most of the funds for those *illiquid* assets, have a perfectly *liquid* investment that, again under normal circumstances, they can convert to cash immediately and at virtually no cost. Truly a miracle.[2] And that's not all. The depositors also get the services of skilled loan officers to invest their funds in illiquid assets earning far higher returns than the depositors

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1. Though most of my examples in this paper will be taken from the recent Southeast Asia experience, much of the analysis applies with equal force to financing growth in Mainland China, Latin America, and Eastern Europe.

2. The classic reference is D. W. Diamond and P. H. Dybvig, "Bank Runs, Deposit Insurance and Liquidity," *Journal of Political Economy* 91 (1983), 401-419.

could hope to earn on their own. What a marvelous mechanism for channeling into productive investments the huge flow of household savings generated in those economies! Remember that those countries, including Mainland China, have savings-to-income ratios that are three, four, or even more times those we in the West have become accustomed to.

Reliance on Banking: The Bad News

For all its potential contributions to economic growth, however, banking remains fragile. The extreme maturity mismatch on the bank's balance sheet (long-term fixed-rate loans versus short-term, floating-rate deposits), plus the first-come-first-served nature of the deposit obligations means that the banks are inherently vulnerable to massive runs by their depositors. Banks are the classic examples of self-fulfilling prophecies. As long as every depositor believes the bank will honor its promises, the bank *will* be able to do so. The withdrawals from any one account will be offset, on average, by deposits into other accounts, buffered by small amounts of till cash. But if for any reason doubts about the safety of the deposits arise on any large scale, then *nobody* can withdraw, except for the lucky few who get to the tellers' windows before the till cash is gone.

Because this source of bank fragility—this multiple equilibrium in deposit banking as economists call it—has long been understood, most governments normally take steps to counter it. The most direct approach sees the government invoking its sovereign powers to *guarantee* the deposits. Nowhere has this approach been carried further than in the U.S., which insures all bank demand deposits up to $100,000 per account (not per individual, but per account). Because individuals can hold multiple accounts, the guarantee of household demand deposits is virtually complete.

Few other countries have gone as far as the U.S. in making the guarantees a matter of law, but the public in many other countries throughout East Asia have come to *expect* that the government *will* honor the deposit commitments of the banks. That implicit guarantee has led to much mischief. In Thailand, for example, the efforts of the Thai Central Bank to bail out the depositors of some failing banks meant increasing the Thai money supply with one hand precisely at a time when the Central Bank, with the other hand, was trying to mop up local liquidity in a vain fight to discourage speculation against the baht. Talk about sending mixed signals to the market!

But whether explicit or implicit, guarantees by the government require back-up in the form of extensive regulation. Otherwise, the perverse incentives known as moral hazard take over. Banks, knowing that the government will make good their liabilities, are led to take excessive risks in selecting their assets. And why not? If the investments succeed, the stockholders get the benefits. And, if they fail, the depositors certainly won't suffer. And even the stockholders needn't suffer heavy losses of their own money, given the enormously high leverage ratios typically found in commercial banking.

Bank Regulation in Practice

The response of the regulators to the moral hazard problem has tended to be a two-fold one as typified, say, in the Basel agreements. On the liability side of the bank balance sheets, first-tier capital requirements of 8% have been made the accepted international norm, though that still leaves debt/equity ratios absurdly high relative to those in the rest of the economy, particularly if, as in Japan and most of the rest of Asia, you don't always write down that capital to allow for your problem loans. On the asset side, the Basel approach has sought to deal with credit risk by imposing so-called "risk-based capital requirements" under which more capital is required for holdings of real estate, say, than of government bonds.

But, as noted, these requirements plus the normal calls for caution and prudence on the part of the banks are not self-enforcing. A continual process of inspection is a feature of every country's bank regulation. In the U.S., where regulatory authority is divided among the Federal Reserve System, the Controller of the Currency and the Federal Deposit Insurance Corporation, bankers often complain that while they are saying goodbye to one group of auditors and regulators at the back door, another group is coming in the front door. This detailed process of outside review has spawned—or should I say intensified—a strong tendency toward bureaucratization in the structure and hierarchy of most banks.

This system of elaborate national and international rules and inspections to keep banking safe failed utterly last year in most of East Asia. Paradoxically, the rule structure governing banking actually made matters *worse* by producing the credit crunch that made recovery so difficult once the collapse had occurred.[3]

The Crippling Consequences of Bank Regulation: The Case of Japan

Any indictment of banks and bank regulation for causing and prolonging the East Asia crisis must begin with Japan. Japan is far and away the biggest economy and the largest lender in the area. And Japan, of course, is the *locus classicus* of bank-

3. Banking vulnerability, needless to say, is not strictly an Asian problem, and the U.S. is not and has not become a country immune to banking stresses. It's just that the U.S. already *had its* banking crises *before* 1997, first the Savings and Loan maturity mismatch crisis of the early 1980s followed by the loan quality crisis in both the S&Ls and the commercial banks in 1989-1991. (For an account of the U.S. S&L disaster of the 1980s and the "reforms" to which it led, see James R. Barth, *The Great Savings and Loan Debacle*, American Enterprise Institute, Washington, D.C. Barth (1991).) Despite such highly publicized post-1980s regulatory actions as the Financial Institutions Reform Recovery and Enforcement Act (FIRREA, 1989) and the Federal Deposit Insurance Corporation Improvement Act (FDICEA, 1991), a sudden, sharp rise in interest rates could still put U.S. banks back on the front page.

driven economic growth and development. How often during the roaring 1980s did we hear hymns of praise to the Japanese *keiretsu* system linking big conglomerate firms with their lead banks? The system was widely imitated throughout East Asia, notably in Korea and was even receiving envious glances from the Mainland Chinese. [4]

In the 1990s, however, the Japanese banking system, for all its favorable aura in world publicity, had begun to have trouble meeting the international capital standards. In fact, many Japanese banks probably couldn't even have come close to those standards had they not bribed the regulators to tip them off when the supposedly random inspections were due.

Causes of the Failure to Meet Bank Capital Requirements

Three main reasons can be cited for this difficulty of Japanese banks in meeting the capital standards. First, of course, was the dramatic fall of the Japanese stock market starting in early 1990 and continuing to the present day. Note in this connection that Japanese banks, unlike U.S. banks, are permitted to hold common stocks. Interlocking holdings, after all, are an integral part of the *keiretsu* system.[5]

Closely paralleling the decline in stock in Japan was the collapse in real estate prices. Some observers attribute the Japanese banks' heavy reliance on real estate lending to a deregulation-induced weakening of the *keiretsu* system under which Japanese banks had enjoyed a secure, tied source of business loans. Rather than shrink in size to meet the new realities of reduced business loan demand, as happened in the U.S., the Japanese banks, some argue, were led into new and riskier types of lending, such as real estate lending in the hope of sustaining their earnings. Perhaps so. But you really don't have to "induce" banks in East Asia to invest in real estate. That has always been their natural inclination, as is all too clear from the skylines of Bangkok, Hong Kong, and even Shanghai. The real estate investments of the Japanese banks, we know, led not to profits, but to losses. What we don't know is precisely how large these losses are on real estate loans in Japan, except that they are surely huge. So huge, in fact, that a serious attempt to force banks to recognize them, then or now, would completely blow away the capital of the banking system.

The third, and in some ways, most devastating blow to bank capital, however, came from bad commercial loans to business. One supposed beauty of banking, it will be recalled, was the expertise of specialized loan-officers in placing the depositors' money in illiquid, but high-return investments in industry. Japanese banks however had a terrible earnings record on business loans even with the supposed information advantages inherent in the *keiretsu* system. The results were even worse in places like Korea, where loans to the *chaebols* were driven not by profit considerations, but by government development objectives; or in Indonesia, the original home of "crony capitalism."

The Consequences of Failing to Meet Capital Requirements

Banking regulation, alas, is not like securities regulation in which failure on some arbitrary statutory requirements might be met with reprimands or fines. A bank that fails its capital requirements because of bad loans must, in principle, either remedy its capital deficiency immediately or close its doors. Citizens of countries whose banks happen not to be in trouble at the moment are always quick to cry for the banks to write off their problem loans. That would be fine if a country were facing one or even a few insolvent banks at a time. But not if all or even most of the banks are under water simultaneously. In countries like Japan and in East Asia generally, that are so heavily dependent on bank financing, the regulators were understandably hesitant to risk strangling their economies by literal interpretation of the international capital standards for their banks—interpretations that would have forced most, or even all, banks to close. The first inclination of the regulators in such cases is always denial—that is, refusal to force recognition of the widespread losses in the hope that the losses will prove transitory. But as the losses continue to mount, that pretense wears thin and the issue of closing down bad banks or bringing in additional replacement capital has to be faced eventually by even the most stubborn regulators (which would certainly include Japan's Ministry of Finance).

One solution for the Japanese banks would have been to fill the holes in their regulatory capital by floating new equity or equity equivalents such as preferred stocks. Modern finance tells us that when the costs of new capital are measured correctly, they come essentially to *flotation* costs—a number that would be 3 or 4%, or at most 10 or 15%, of the funds raised. Cost is not always the key, however, in the cozy world of Asian banking; control is. And the existing owners (and their managers) are reluctant, to put it mildly, to share that control with outsiders, particularly with foreigners who would have to put up much of the money. They see it as merely another form of Western imperialism. Another possibility, of course, would have been for the government to recapitalize the banks by buying big chunks of preferred stock, the strategy followed for the similarly damaged U.S. banking system

4. I discuss the role of banks in the corporate governance system of Japan in Chapter 12 (entitled "Japanese versus American Corporate Governance") of my book, *Merton Miller on Derivatives* (New York: John Wiley & Sons, Inc., 1997). The influence of the Japanese bank-driven system on China is considered in Chapter 14, "Alternative Strategies for Corporate Governance in China."

5. Some of the problems caused by allowing ownership of common stocks by Japanese banks are considered in Miller (1997), especially Chapter 19 entitled "Do the Laws of Economics Apply to Japan?"

in the early 1930s. But in Japan, at least, anything smacking of deliberate government bailouts out of the existing bank stockholders—not the depositors, but the stockholders—is politically out of the question.[6]

Lowering Interest Rates to Benefit Japanese Banks: The Unintended Consequences

Faced with the Scylla of violating the international capital standards and the Charybdis of raising new capital from foreigners, MOF in Japan had one ploy left: drive down short-term interest rates. And drive them down they did, to levels not seen since the U.S. in the 1930s. The hope was that the Japanese banks would earn such high profits on the spread between short- and long-term interest rates that they could restore their capital and begin the task of writing down their bad loans. Driving down Japanese interest rates, however, also drove down the value of the yen relative to the U.S. dollar; or, what amounts to the same thing, raised the value of the dollar in relation to the yen. Unfortunately, of course, many of the countries of Southeast Asia, notably Thailand, had tied their currencies to the U.S. dollar, so that when the dollar surged in response to Japanese policy, those local currencies soon struck the speculators and trade hedgers as substantially overvalued and they placed their bets accordingly. The Thai baht soon gave way, losing close to 50% of its value almost overnight and dragging down with it the exchange rate of its neighbors and competitors, Malaysia, Indonesia, the Philippines, and Korea.[7] As the exchange rate went down, the real debt burden went up for those firms (and banks) that had been borrowing in dollars. Bankruptcies were threatened everywhere and few countries had the institutions, even with IMF assistance, to permit a quick restructuring of the dollar-denominated debt of hundreds of separate corporations.

In sum, efforts by the Japanese to protect the capital of their *own* banks by lowering interest rates, and by calling (or refusing to roll over) loans to Asian firms and banks, served to destabilize much of the rest of Asia—and especially the banks in the rest of Asia. Runs by depositors began occurring on a massive scale in Thailand and depositor concern was felt even in countries with "strong" banking systems like Hong Kong and Singapore. The scramble for liquidity (and the efforts by some countries to defend their currencies by raising interest rates) brought stock prices and real estate prices down sharply. Banks throughout the region and not just in Japan then faced capital compliance problems. They too responded by calling loans where they could and refusing to make new ones. Soon ordinary trade credits were being denied even to sound businesses, including companies with firm export orders in hand. Like an automobile engine that has lost its oil, the system of bank-led development was in a freeze-up.[8]

Although I am arguing that the inherent fragility of banking lies at the root of the current Asian turmoil, I intend to present here no laundry list of needed new banking regulations or reforms. Can *any* set of policies we know about guarantee the system against periodic freeze-ups? I doubt it. Remember, in this connection, that one can't simply introduce legislation and assume it will be competently and honestly administered. Japan is again the obvious object lesson there, but it is a long-held tenet of Chicago-style economics that the greater the number of government regulations the greater are the incentives to corruption.[9]

Try to lessen the vulnerability of the banking system, by all means, but recognize that for the long run, the only safe policy is to reduce the role of banks and banking in economic life. That means, among other things, the creation of market substitutes for functions now performed by banks. And, for reasons of brevity, let me mention just two such financial market instruments.[10]

Financial Market Substitutes for Banking

Money Market and Other Mutual Funds

I begin with a simple and easily implementable substitute for bank deposits as a source of liquid accounts for the general public. That substitute, of course, is the Money Market Mutual Fund. In the U.S., at least, the deposits in such Money Market funds, most of which are transferable by check, have already surpassed the total of commercial bank deposits. Money Market Mutual Funds, unlike ordinary banks (but like Irving Fisher's "narrow banks"), invest only in short-term, liquid money market instruments like Treasury bills, or more typically, the liquid and highly rated commercial paper of major businesses (another alternative to traditional bank loans, though the paper is often backed by bank guarantees). In the 30 years or so since the formation of Money Market Funds was generated by the idiocies of our bank regulation, in particular by the restrictions on deposit account interest payments, not a single case of failure or even massive withdrawal-runs from those institutions has occurred. And this, mind you, even though such accounts are not insured or in any way guaranteed by the sovereign

6. So desperate has the threat of bank runs become recently in countries like Thailand and Indonesia, however, that the governments have been forced to nationalize many failing banks.

7. The role of the depressed yen in precipitating the Southeast Asia crisis is discussed in my article, "The Current Southeast Asia Financial Crisis," *Pacific Basin Capital Market Journal* (1998). It is interesting to speculate about how different the outcome in Southeast Asia's currency markets might have been if the countries in the area had pegged their currencies to the yen rather than the dollar. Taiwan appears to be adopting just such a strategy at the moment.

8. I do not want to leave the impression, however, that the credit crunch was entirely supply-side induced. Even a bank with adequate capital won't lend to a company facing bankruptcy.

9. The problem of providing the correct market-driven incentives not just to bank *managers*, but to bank *regulators*, is a central theme in two articles by Edward J. Kane: "Financial Regulation and Market Forces," *Swiss Journal of Economics and Statistics* 122 (3), 325-42; and "A Market Perspective on Financial Regulation," *Cato Journal* 13 (3) (1998), 333-337.

10. In a fuller account, mention should surely be made of securitization, which permits banks or other lenders to use their expertise in *originating* loans, which are then bundled for resale in tranches of different risk to ultimate investors.

credit of the U.S. government (to repeat a phrase much beloved by Alan Greenspan, the Chairman of the Federal Reserve System, when applied to the U.S. commercial banking system). Such guarantees the Funds have are provided by the reputations of the *investment* banks—not commercial banks—that sponsor the Funds. But, in some ways even more important as a discourager of runs is the abandonment of the pernicious first-come-first-served rule of ordinary commercial banks deposits.

The Money Market Mutual Funds, though they strive to maintain the value of each share at $1 at all times, are indeed *mutual* funds. If, therefore, short-term interest rates were suddenly to rise steeply; and if the market value of even the Fund's very short-term assets were to fall; and if all the depositors at once sought to be first in line at the withdrawal window, they couldn't win. A mutual fund always has the right to give withdrawers a "haircut"—that is, to give them only their aliquot share of the value of the assets. True, even though they have that right, the sponsors of some troubled Funds have found it in their interest to put in the necessary additional capital to avoid "breaking the buck," as it's called. But that is a business decision on their part, and not a matter of law. The key point is that runs can't occur as long as the depositors realize no one can benefit from running to be first to withdraw.

Mutual funds concentrating on short-term liquidity for savers are clearly one obvious and easily implemented financial institution, but mutual funds of *all* kinds—domestic stock funds, foreign stock funds, bond funds and what have you—are also urgently needed. One reason that banks are so powerful in countries like Japan and China is that the average household has really no alternative to low-yield bank deposits as a way of storing wealth except, of course, putting it under the mattress (and in Japan they don't even use mattresses!). In Japan, of course, the lack of substitutes was deliberate; it was part of the Japan Inc. program of forcing the public savings into low return bank deposits for the supposed benefit of giving cheap capital to industry. The notorious technological and consumer-service backwardness of the Japanese banking industry (in Japan, the ATM machines don't run on weekends!) surely traces in large part to this virtually complete absence of competition for depositors' funds.

Junk Bonds

If mutual funds are a market substitute and supplement for bank deposit liabilities, junk bonds, so-called, can play an equally important role as a financial market supplement and substitute for long-term commercial loans by banks. I use the term "junk" with some trepidation because these securities, which are really nothing more than unsecured, junior debentures, have come to have bad connotations in the U.S. The term "junk" is a pejorative applied by the old-line, "white shoe" investment bankers, as we call them, working in the more dignified, high-quality end of the bond market.

Actually, of course, junk bonds in the sense of high-yield junior securities have always been with us, sometimes as the preferred stocks so beloved of J. P. Morgan in the early years of this century, but mostly of debt instruments thereafter. The modern phase of the junk bond market, however, and the one attracting the bad public image, traces to the early 1980s. At that time, a number of ambitious new communication-oriented firms, like the telephone company, M.C.I., found themselves unable to satisfy their demands for huge amounts of capital either from the investment grade bond markets—new firms like M.C.I., after all, had no previous track record—or from their regular commercial banks. Despite the supposed informational advantages of relationship banking, why should banks have been expected to put up big chunks of money for such highly speculative ventures? Bank loan officers, after all, aren't paid to take risks. Safety is the watchword, for reasons noted earlier.

Into this breach stepped several *investment* banks. Investment bankers, unlike commercial bankers *are* paid to take risks; witness, among other things, the substantially higher salaries they command. Prominent among these investment bankers was Michael Milken at the relatively new and extremely brash firm of Drexel, Burnham, Lambert (a firm whose junk bond business was run not out of staid New York like a serious bond dealer was supposed to do, but out of Los Angeles, no less, a city with a reputation for froth and frivolity). Milken's essential innovation was not to *invent* junk bonds; they already had a long history as I have indicated, but to make them *liquid*, easily tradable, *market* instruments. He became not just a bond dealer, but a *market maker* in junk bonds.

Once the market had been made liquid, both the demand for and supply of junk bonds increased substantially. A substantial part of that new supply in the late 1980s came from what were called, again pejoratively, "corporate raiders," using junk bonds for taking over firms from complacent, entrenched managements. Although such transfers of ownership serve normally to raise shareholder value—as evidenced by the huge premiums in many hostile takeovers—entrenched corporate America, and its natural allies in Washington, struck back hard against the junk bonds they saw as the threat to their interests. Michael Milken was soon sent to jail on essentially trivial, technical charges; and major government- regulated users of junk bonds, such as savings and loan associations were forced to unload their holdings of such bonds.[11] With its main market maker thus knocked out of

11. A detailed account of the government-led vendetta against Milken is given by Daniel Fischel in *Payback: The Conspiracy to Destroy Michael Milken and His Financial Revolution* (New York: Harper Business, 1995).

play and with the instrument itself under a black reputational cloud, junk bonds seemed doomed—just one more excess of the Reagan years of greed. But economics assures us that if a market does satisfy important social needs, the market will eventually surmount artificial, mainly government-induced obstacles, and resume its rightful place in the pantheon.

And that has indeed happened to the U.S. junk bond market, which has played, and which continues to play, a major role in funding the fixed capital requirements of so many firms that are growing, but whose ratings are less than triple-A (or sometimes even less than single B). Innovative medium-sized firms of that kind must be relied upon to resume Asia's economic growth now that the former bank/government approach to growth and the industrial dinosaurs it inevitably spawned have been so thoroughly discredited. For this necessary transition in growth modalities, a greater role for vigorous financial markets, including junk bond markets, is clearly essential.

Conclusion

That financial markets contribute to economic growth is a proposition almost too obvious for serious discussion at a forum this sophisticated. True, those markets are often blamed these days for causing *negative* growth, especially in Southeast Asia. But markets, because they draw so much publicity, particularly when they crash, have always been blamed for society's ills. Most Americans, even today, believe that the great depression of the 1930s was caused by the stock market crash of 1929 rather than by the inept monetary mismanagement of the Federal Reserve System. Similar folklore has sprung up about the so-called "derivatives disasters" of the 1990s—disasters which turn out, on closer examination, to be merely familiar, old-fashioned management disasters in a new disguise.[12]

I have chosen not to spend time pointing out that prices in *all* freely-functioning markets, financial and non-financial alike, are subject to crashes. Oil prices, for example, have declined far more drastically in recent months than the much ballyhooed stock market break of October 1987. Most real-world markets have time paths that are almost everywhere discontinuous, as the statisticians say (that is, that are subject to periodic abrupt shifts, *up* as well as down). Continuously smooth price paths (which the public thinks of as normal) are actually an artifact of the specialist system of the New York Stock Exchange, and even those specialists can't pull it off when sentiment shifts abruptly.

I have tried here instead to point to an often overlooked aspect of financial markets and economic growth, namely the diversification benefits that financial markets bring. Having a wide spectrum of financial markets available keeps a country from having to put all its development eggs in one basket, as it were—and, in particular, from relying too heavily on commercial banking. Commercial banking, at its best, can be an extremely efficient form of intermediation between saving and investment, particularly when a country is just starting out on its road to development. You can't expect a country to rely on a stock market, after all, until it has common stock (and the legal infrastructure that goes with it)! But, relying on banking, like relying on atomic-energy electric power, is a disaster-prone strategy requiring enormous amounts of direct government supervision to reduce the frequency of explosions (and subsequent implosions).

In fact, however, as I have attempted to argue, the regulatory apparatus designed to protect the banking system actually becomes counter-productive and leads to a credit freeze-up wherever any substantial number of banks go bad at the same time. The U.S., to its great benefit, has made itself much less vulnerable than in the past to credit crunches (and has substantially increased the efficiency of the capital allocation process) by substituting dispersed and decentralized financial markets for banking. Japan, despite having long since become a "mature" economy, still has not; and its efforts to deal with its banking problems have served only to destabilize itself as well as its neighbors. We can only hope that other developing countries, especially but not only in Southeast Asia, will not follow the Japanese example and will begin, more systematically, to substitute financial markets for banks.

MERTON MILLER was the Robert R. McCormick Distinguished Service Professor Emeritus at the University of Chicago's Graduate School of Business. He was awarded the Nobel Prize in Economics in 1990.

12. The derivatives disasters are discussed in Miller (1997), especially Chapter 2 entitled "The Recent Derivatives 'Disasters': Assessing the Damage."

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